

We claim:

1. A wiper system for cleaning ink residue from a printhead in an inkjet printing mechanism, comprising:

5        a support; and

      a pair of wiper blades supported by said support to wipe ink residue from the printhead through relative motion between the printhead and said wiper blades, with each blade having a base adjacent said support and a tip opposite said base, wherein said bases are separated by a first distance and said tips are separated by a second  
10      distance which is less than said first distance.

2. A wiper system according to claim 1 wherein each blade has a first thickness at the base and a second thickness at the tip which is less than said first thickness.

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3. A wiper system according to claim 1 wherein each blade tapers to a wiping edge at the tip.

4. A wiper system according to claim 1 wherein each blade has a first portion adjacent the base and a second portion adjacent the tip, wherein said first portions are substantially mutually parallel, and said second portions gradually curve toward one another.

25      5. A wiper system according to claim 1 wherein each blade has an interior surface facing the interior surface of the other of said pair of blades, with said interior surfaces each having a concave contour.

30      6. A wiper system according to claim 5 wherein each blade has an exterior surface opposite said interior surface, with said exterior surfaces each having a convex contour.

7. A wiper system according to claim 1 wherein:

said support comprises a sled which is movable between a rest position and a wiping stroke; and

said relative motion comprises holding the printhead stationary while moving

5 said wiper blades through a wiping stroke.

8. A wiper system according to claim 1 wherein:

each blade has an interior surface facing the interior surface of the other of

said pair of blades;

10 said interior surfaces each have a concave contour when the blades are at rest; and

the interior surface of each blade maintains at least a portion of said concave contour when wiping the printhead.

15 9. A wiper system according to claim 1 wherein:

said support comprises a sled which is movable between a rest position and a wiping stroke;

the blades each have an interior surface, with said interior surfaces facing each other;

20 a leading blade first contacts the printhead during the wiping stroke;

a trailing blade last contacts the printhead during the wiping stroke;

the interior surface of the first blade maintains a concave contour during the wiping stroke; and

during the wiping stroke, the interior surface of the second blade has a

25 contour with both concave and convex components.

10. A method of cleaning ink residue from a printhead in an inkjet printing mechanism, comprising:

contacting a pair of wiper blades with the printhead through relative motion therebetween during a wiping stroke;

5 wherein the blades each have an interior surface, with said interior surfaces facing each other; and

during the wiping stroke, flexing the leading blade interior surface into a concave contour, and flexing the trailing blade interior surface into a contour having both concave and convex components.

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11. A method according to claim 10 wherein said relative motion of said contacting comprises holding the printhead stationary while moving the blades.

12. An inkjet printing mechanism, comprising:

15 an inkjet printhead which collects ink residue during ink ejection;  
a support; and

a pair of wiper blades supported by said support to wipe ink residue from the printhead through relative motion between the printhead and said wiper blades, with each blade having a base adjacent said support and a tip opposite said base, wherein  
20 said bases are separated by a first distance and said tips are separated by a second distance which is less than said first distance.

25 13. An inkjet printing mechanism according to claim 12 wherein each blade has a first thickness at the base and a second thickness at the tip which is less than said first thickness.

14. An inkjet printing mechanism according to claim 12 wherein each blade tapers to a wiping edge at the tip.

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15. An inkjet printing mechanism, comprising:  
an inkjet printhead which collects ink residue during ink ejection;  
a support; and  
a pair of wiper blades supported by said support to wipe ink residue from the  
5 printhead through relative motion between the printhead and said wiper blades, with  
each blade having a base adjacent said support and a tip opposite said base, wherein  
each blade has a first portion adjacent the base and a second portion adjacent the tip,  
wherein said first portions are substantially mutually parallel, and said second  
portions curve toward each other.

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16. An inkjet printing mechanism, comprising:  
an inkjet printhead which collects ink residue during ink ejection;  
a support; and  
a pair of wiper blades supported by said support to wipe ink residue from the  
15 printhead through relative motion between the printhead and said wiper blades,  
wherein each blade has an interior surface facing the interior surface of the other of  
said pair of blades, with said interior surfaces each having a concave contour.

17. An inkjet printing mechanism according to claim 16 wherein each blade  
20 has an exterior surface opposite said interior surface, with said exterior surfaces each  
having a convex contour.

18. An inkjet printing mechanism, comprising:
  - an inkjet printhead which collects ink residue during ink ejection;
  - a support; and
  - a pair of wiper blades supported by said support to wipe ink residue from the printhead through relative motion between the printhead and said wiper blades, with each blade having an interior surface facing the interior surface of the other of said pair of blades;
    - wherein said interior surfaces each have a concave contour when the blades are at rest, and the interior surface of each blade maintains at least a portion of said concave contour when wiping the printhead.
19. An inkjet printing mechanism, comprising:
  - an inkjet printhead which collects ink residue during ink ejection;
  - a sled which is movable between a rest position and a wiping stroke; and
  - 15 a pair of wiper blades supported by said sled to wipe ink residue from the printhead through relative motion between the printhead and said wiper blades, with each blade having an interior surface and with said interior surfaces facing each other;
    - wherein, during the wiping stroke, a leading blade of said pair first contacts the printhead and a trailing blade of said pair last contacts the printhead;
      - 20 wherein during the wiping stroke, (a) the interior surface of the first blade maintains a concave contour during the wiping stroke, and (b) the interior surface of the second blade has a contour with both concave and convex components.
  - 25 20. An inkjet printing mechanism according to any of claims 12 through 19, wherein said relative motion comprises holding the printhead stationary while moving the blades across the printhead.

21. A method of cleaning ink residue from an inkjet printhead having an ink ejecting orifice plate in a first plane and an interconnection feature in a second plane non-coplanar with said first plane, with the orifice plate and the interconnection feature being joined together along an edge, comprising:

- 5       scooping ink residue off of the interconnection feature;
- moving the scooped ink residue around said edge then across the orifice plate; and
- during said moving, collecting ink residue from said edge and said orifice plate.

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22. A method according to claim 21 further comprising, prior to said moving:

- wicking ink from the nozzles; and
- dissolving ink residue on the orifice plate with the wicked ink.

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23. A method according to claim 22 wherein:

said wicking comprises extracting ink through capillary forces generated by dragging a first wiper blade across the orifice plate; and  
said scooping, moving, and collecting each further comprise dragging a second wiper blade across the interconnection feature, the edge, and the orifice plate.

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24. A method according to claim 21 wherein said first and second planes are substantially perpendicular.

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25. A method of cleaning ink residue from an inkjet printhead having an ink ejecting orifice plate in a first plane and an interconnection feature in a second plane non-coplanar with said first plane, with the orifice plate and the interconnection feature being joined together along an edge, comprising:

- 5        providing a pair of wiper blades;
- wiping the printhead with said pair of blades in a wiping stroke so a leading blade of said pair first contacts the printhead and a trailing blade of said pair last contacts the printhead;
- 10      wicking ink from the nozzles by dragging the leading blade across the orifice plate;
- dissolving ink residue on the orifice plate with the wicked ink;
- removing ink residue from the interconnection feature and edge by dragging the trailing blade thereacross; and
- 15      removing dissolved ink residue from the orifice plate by dragging the trailing blade thereacross.

26. A method of cleaning ink residue from an inkjet printhead having an ink ejecting orifice plate in a first plane and an interconnection feature in a second plane which is non-coplanar with said first plane, with the orifice plate and the interconnection feature being joined together along an edge, comprising:

- providing a wiper blade having a leading surface with a concave contour;
- wiping the printhead with the blade by moving in the direction of the leading surface to remove ink residue from the interconnection feature, from said edge, then from the orifice plate; and
- 25      maintaining at least a portion of said concave contour during said wiping.

27. A method according to claim 26 further comprising flexing the blade during said wiping to induce both concave and convex contours into the leading surface of said blade.

28. A method of cleaning ink residue from an inkjet printhead having an ink ejecting orifice plate in a first plane and an interconnection feature in a second plane which is non-coplanar with said first plane, with the orifice plate and the interconnection feature being joined together along an edge, comprising:

- 5        providing a wiper blade having a leading surface with a concave contour;
- wiping the printhead with the blade by moving in the direction of the leading surface across the interconnection feature, said edge, then across the orifice plate; and
- during said wiping, collecting ink residue from the printhead along the 10      leading surface of the blade.